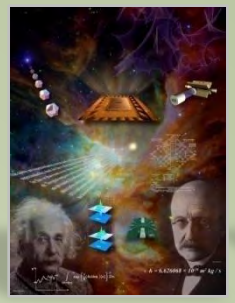
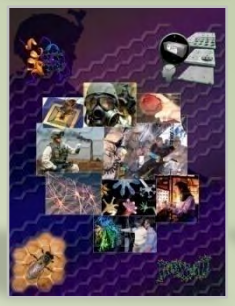
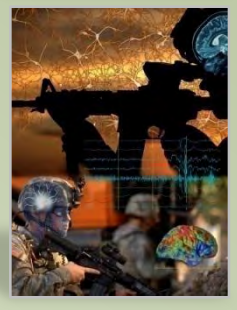


Quantum Information Science
Immersive Technology
Autonomous Systems
Network Science
Nanotechnology
Biotechnology
Neuroscience



Army Science & Technology

Harnessing Disruptive S&T for the Soldier

1 Dec 2008

Dr. Thomas H. Killion
Deputy Assistant Secretary
for Research and Technology/
Chief Scientist

Report Documentation Page

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Strategy—what is Army S&T working to achieve

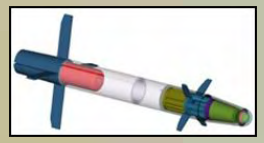
Fostering innovation and accelerating/maturing technology to enable Future Force capabilities while exploiting opportunities to rapidly transition technology to the Current Force

Current Force

Modular Protective Systems

Micro Air Vehicle

IED/Mine Detection Ground Penetrating Radar



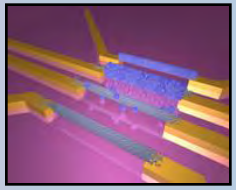
120mm Mid-Range Munition

Enabling the Future Force

Enhancing the Current Force

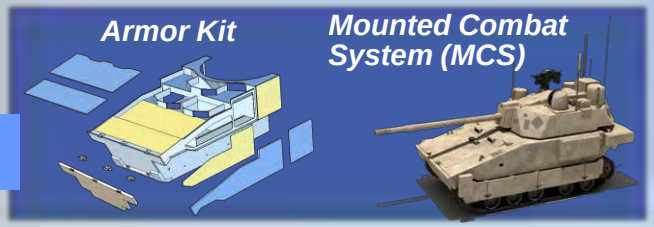
Future Force

Immersive Training



Virus-based Self-Assembling Electrodes

Flexible Displays



Aligning Investments with Army Needs—meeting Demands of the 21st Century

Current Force Enhancements

Technical Threat Characterization
Enhanced Performance Armor Development
Analysis-Driven Armor Designs

MRAP Armor

Fall 2007

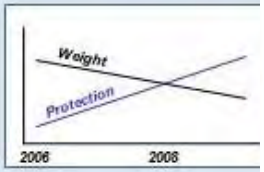
IMG production with MRAP Expedient Armor

Spring 2008

IMG after OEM engineering changes

Spring 2007

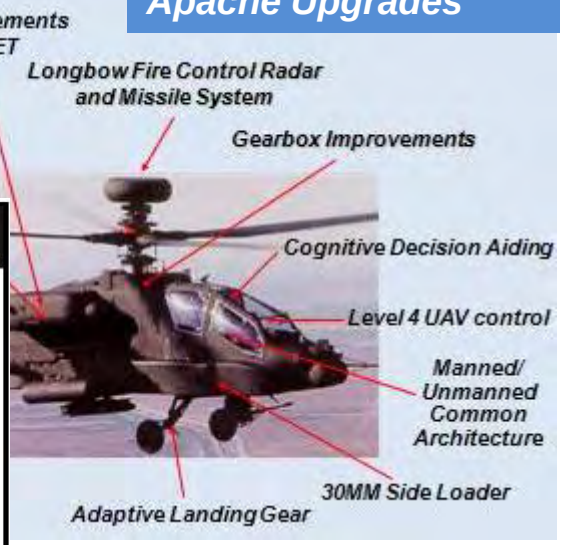
Improved Frag-Kit 6 HMMWV add-on kits to OIF



Improved First Aid Kit

The Four Elements of Army Modernization

Apache Upgrades



Incorporating New Technologies from FCS

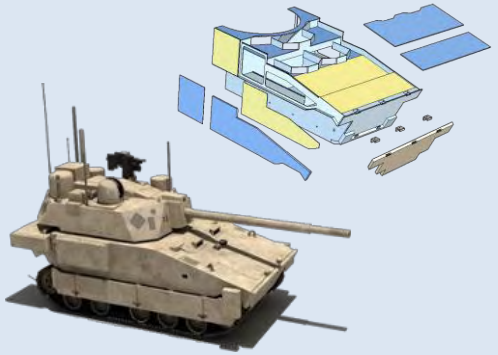
NLOS-LS

Missile Seeker, Guidance and Control

KE Active Protection

Lethality and Protection for FCS

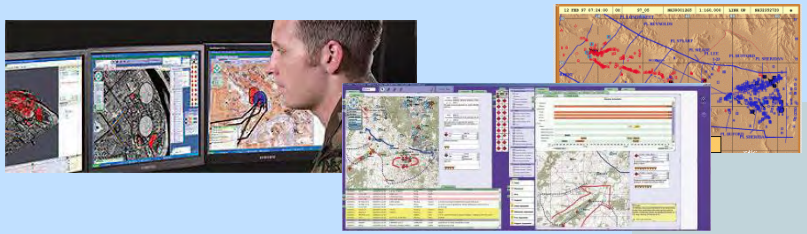
Passive Armor



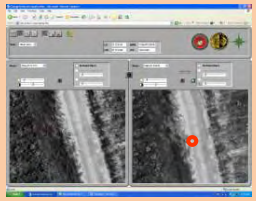
120mm Cannon

S&T Supporting the Current Force

Command & Control



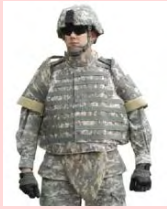
Persistent Surveillance



Unmanned Systems

Power Sources

Soldier Protection

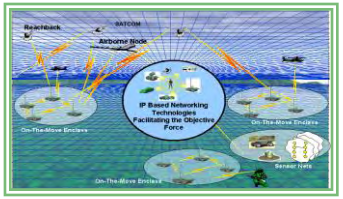


Generating Technology Options for FCS

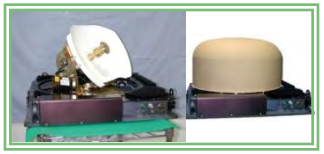
Mid Range Munition (MRM)

Breech Loaded 120mm Mortar

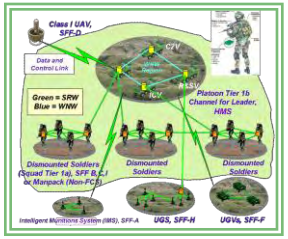
Lightweight 120mm Gun



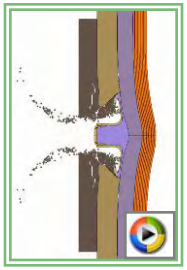
Networked Communications



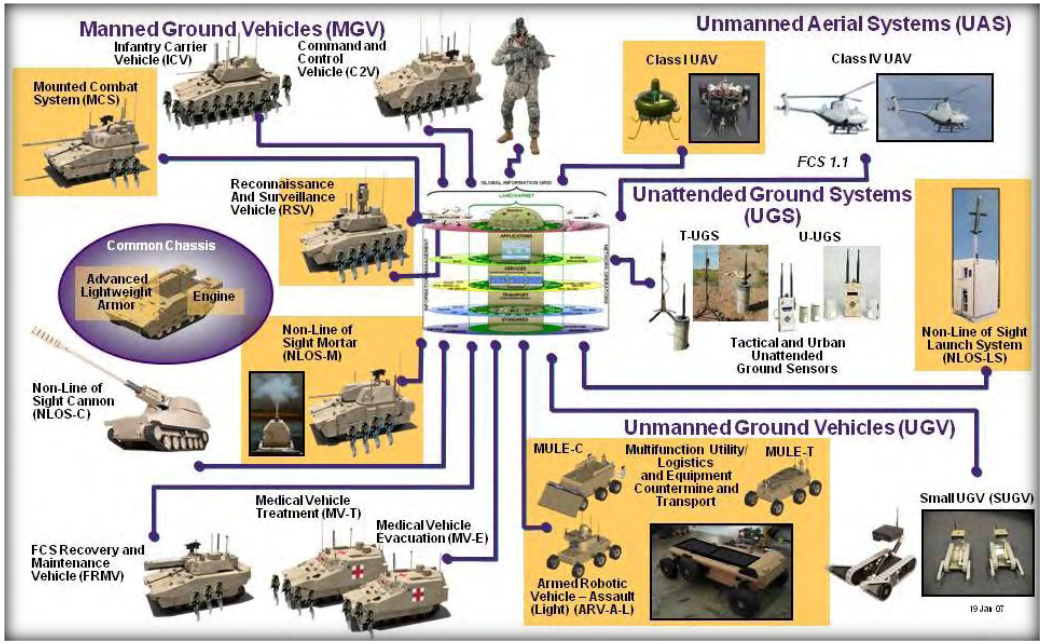
SATCOM On The Move



Soldier Radio Waveform



Advanced Armor



Micro Air Vehicle (MAV)

Scaleable Embedded Training and Mission Rehearsal

Precision Attack Missile (PAM) Seeker

Active Protection System (APS)

Prototype Engine

Kinetic Energy APS

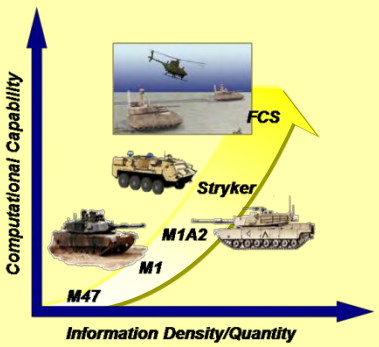
UGV Crusher

Unmanned Ground Vehicles (UGV)

Urban Reasoning & Battlespace Analysis

Complexity Demands Disruptive Technology

Ground Combat Vehicle Evolution



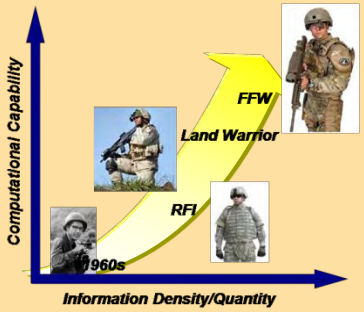
M47 Patton

- FM Radio
- Direct View Optics
- Engine Gauges
- Ballistic Periscopes

M1A2 Abrams

- Secure data/voice radio
- Thermal Viewer
- FBCB2 Digital Battle Command
- Digital Fire Control
- 1 Color/3 Monochromatic Displays

Soldier as System Evolution



Late 1960s Soldier

- FM radio
- Early I2 devices
- Binoculars
- M-16 with daylight scope

Future Force Warrior (FFW)

- Integrated body armor & equipment carriage suite
- Helmet mounted thermal imaging
- Radio digitally linked to unit communications network displaying individual locations
- Laser aided weapon precision fire control
- Embedded training

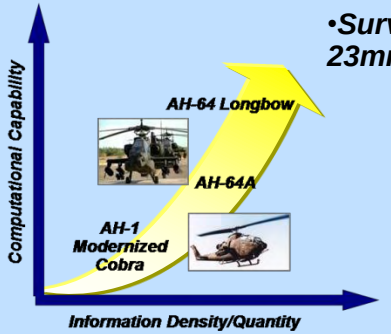
Helicopter Evolution

AH-1 G Cobra

- FM Radio
- Direct View Optics
- 2.75 inch rockets and 7.62mm machine gun

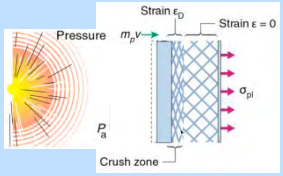
AH-64 Apache Longbow

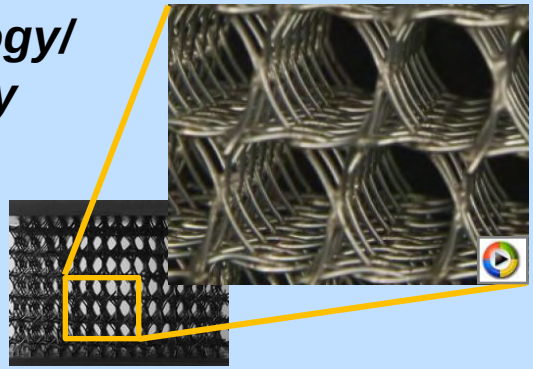
- Secure data/voice radio
- Integrated pilot night vision system
- Digital fire control linking gunners view & weapons systems
- Longbow MMW radar
- Hellfire missiles and 30mm cannon
- Survivable rotors—up to 23mm AA



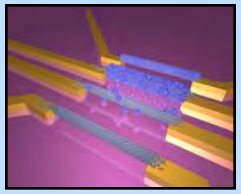
Science for Disruptive Technology

Nanotechnology/ Biotechnology





Bio-Inspired Energy-Dispersive Materials



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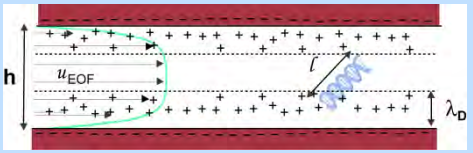
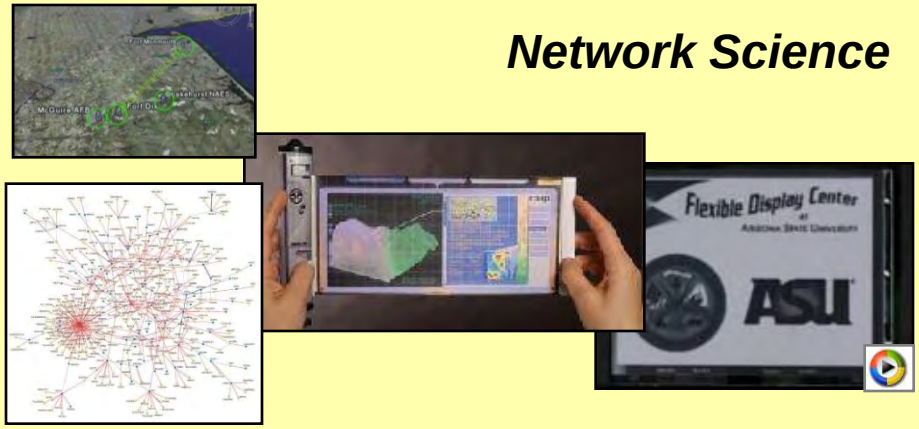


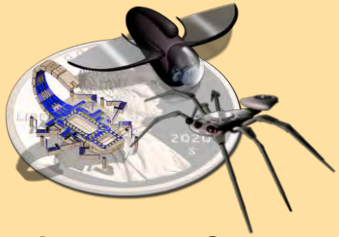
Nanofluidics

Network Science



Autonomous Systems

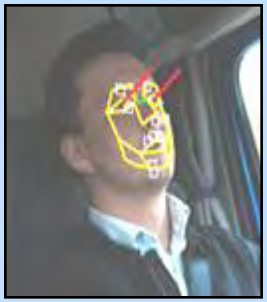
Nanoflyer

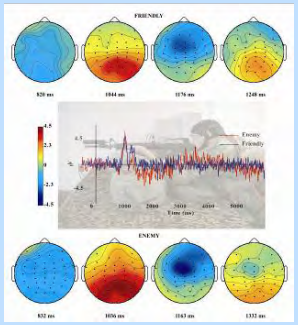


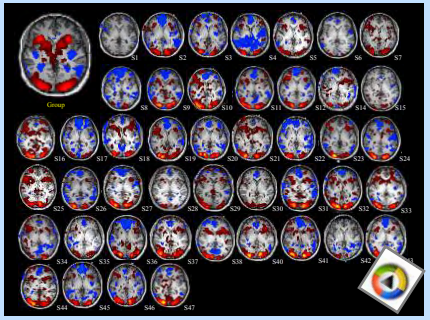
Micro Autonomous Systems Technology CTA

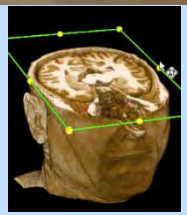
Science for Disruptive Technology

Neuroscience



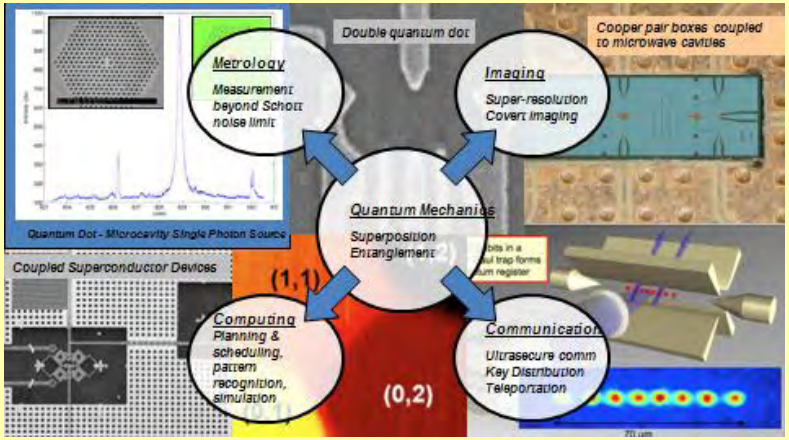






fMRI

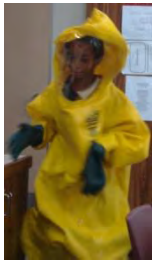
Quantum Information Science



Immersive Technology

Fostering Science and Engineering Careers

Students participating in bridge building exercise at George Washington University



Student in bio-suit at Walter Reed Army Institute for Research

Experiences

Careers

Competitions

SMART
SCIENCE, MATHEMATICS & RESEARCH FOR TRANSFORMATION
PART OF THE NATIONAL DEFENSE EDUCATION PROGRAM

Junior Solar Sprint

Tomorrow's Technology is in the Minds of Today's Youth

Army S&T…
Engine of Transformation

U.S. Army Armament Research, Development and Engineering Center
2007 Malcolm Baldrige National Quality Award